Distr.: General
9 June 1999

Original: English

THIRD UNITED NATIONS CONFERENCE ON THE EXPLORATION AND PEACEFUL USES OF OUTER SPACE

Vienna
19-30 July 1999

Abstract of the paper of the International Organization of Space Communications

1. The International Organization of Space Communications (INTERSPUTNIK) is an international intergovernmental organization founded in 1971 in order to establish and develop an international satellite system for the benefit of its member countries and other users. Presently, INTERSPUTNIK comprises 23 States that are Member States of the United Nations. More than 100 public and private companies are among the Organization's customers. Despite the serious consequences of the collapse of the Union of Soviet Socialist Republics and the elimination of the institutional forms of cooperation between the former socialist community of countries, INTERSPUTNIK continues its development, steadily expanding its sphere of activity.

2. The transition of the Organization to commercial operation of its satellite system and its active entry into the world telecommunications market resulted in drastic changes in the legal basis of its activity. In the period from 1992 to 1996, new regulatory documents, namely, the Protocol on Amendments to the Agreement on the Establishment of the INTERSPUTNIK International System and Organization of Space Communications of 15 November 1971 and the Operating Agreement of INTERSPUTNIK, have been drawn up with the intention of restructuring the Organization fundamentally.

3. Global changes in geopolitics at the beginning of the 1990s and the very rapid development of the telecommunications market—the introduction of new services, deregulation, emergence of new operators and, as a result, keener competition—forced INTERSPUTNIK to reconsider its activity in order to adapt to the dynamically developing environment. Given those circumstances, INTERSPUTNIK chose a new development strategy based on long-term strategic alliances with both satellite communications operators and manufacturers of satellites, launch vehicles and ground equipment. The relevant decision was adopted by the INTERSPUTNIK Board in 1993 and resulted in an agreement on strategic partnership with the Lockheed Martin Corporation, one of the major manufacturers of satellite systems. The establishment of the Lockheed Martin INTERSPUTNIK (LMI) joint venture became a unique experiment in cooperation between an intergovernmental organization and a transnational corporation. The purpose of establishing the joint venture was implementation of a satellite communications project, covering the whole technological cycle of satellite communications services from manufacture and launch of satellites to their long-term in-orbit operation. The project provides for the launch of four state-of-the-art communications satellites, which will support the global communications network of the LMI system. The first LMI-series satellite will be launched by a Proton launch vehicle to 75° E in the second half of 1999.

V.99-84876 (E)

4. Besides LMI-series satellites, INTERSPUTNIK will use upgraded Russian Express satellites (of joint Russian-French manufacture), new SESAT satellites of the European Telecommunications Satellite Organization, as well as other satellites on the basis of possible further alliances.

5. At the beginning of the third millennium, one of the priority trends in INTERSPUTNIK's development will be the operation of the new LMI-Ka series satellites utilizing the Ka band (20/30 GHz) and with on-board switching and processing of signals and inter-satellite retransmission.

6. The new generation of satellites that will operate as part of the global INTERSPUTNIK system meet the latest and prospective world requirements and have much better characteristics than the spacecraft that INTERSPUTNIK used earlier. The new INTERSPUTNIK satellite fleet will provide for digital television channels, videoconferencing, cellular television broadcasting, interactive services, multimedia, high-bit rate access to the Internet, expansion of very small aperture terminal (VSAT) Earth station networks, tele-medicine and tele-education, banking services and reliable communications on a global basis.

7. The rejuvenated INTERSPUTNIK space segment, together with the upgraded ground facilities, paves the way for the latest telecommunications technologies.

Distr.: General
9 June 1999

Original: English

THIRD UNITED NATIONS CONFERENCE ON THE EXPLORATION AND PEACEFUL USES OF OUTER SPACE

Vienna
19-30 July 1999

Abstract of the paper of the European Space Agency

1. The purpose of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III) is to review and highlight the significant advances in space science and technology that have taken place since 1982 with a view to promoting their greater use, in particular by developing countries, in all areas of economic, social and cultural development.

2. The present paper reflects the shared thinking of the member States of the European Space Agency (ESA) on some of the most important themes of the agenda of the Conference and sets out the main reasons for conducting space research and using space applications. It is based on the 12 background papers prepared by ESA as input to the secretariat of UNISPACE III (A/CONF.184/BP/1-12). For a clearer presentation of the shared thinking of the 14 ESA member States on advances in space science and technology, the paper has been divided into three topics, as discussed below:

I. Space applications

A. Earth observation

3. There is increasing awareness of the need for better understanding of the Earth's system in its entirety, comprising the atmosphere, oceans and land, and the complex interactions between those components. Observation from space through artificial satellite systems is the best way to monitor the Earth's environment globally. An important advantage of a remote-sensing database is its multidisciplinarity, meaning that Earth observation data sets can serve different application disciplines, making for optimization of investment in their production.

4. Space meteorology is the application that first became operational, in 1960, and has paved the way to uses of satellite data in many other geophysical and environmental disciplines, such as climatology, forestry, agriculture, geology, oceanography, glaciology and risk management, and in general monitoring of the Earth and its resources.

5. Since 1977, when the first European geostationary meteorological satellite, Meteosat, was launched by ESA, a series of successors have followed. Today those satellites are operated by the European Organization for the Exploitation of Meteorological Satellites, with which ESA is now cooperating on development of the second generation of meteorological satellites, including three polar-orbiting satellites (Metop-1, 2 and 3) dedicated to meteorological and climatological applications. ESA currently has two Earth observation satellites in orbit, ERS-1 and ERS-2, whose capabilities have led to the development of a range of new applications,

such as climate monitoring, land use information and natural hazard detection. A third satellite, Envisat-1, is being developed as their successor and is scheduled for launch by the end of 1999.

B. Global Navigation Satellite System

6. The most significant advance in radio navigation is, without doubt, satellite navigation, which will have a major effect on everyday life. Its impact on transport systems will be considerable and will lead to economies and increases in efficiency. No State that intends to maintain modern, efficient transport infrastructures will be able to ignore its capabilities.

7. There are two satellite navigation systems available at present, the Global Positioning System (GPS) of the United States of America and the Global Orbiting Navigation Satellite System (GLONASS) of the Russian Federation. Both are military systems and have been extended for civilian users, even though they are still operated under military control. Encrypted messages, available to military users only, provide much higher accuracies than the open code, which is degraded intentionally to reduce accuracy to approximately 100 metres.

8. Europe is also preparing for the next generation of satellite navigation, Galileo, previously referred to as the Global Navigation Satellite System-2 (GNSS-2), which is expected to be under civilian control, tailored to the long-term needs of civil user communities and designed for improved navigation performance, while still retaining GPS/GLONASS compatibility.

C. Satellite multimedia systems

9. The Global Information Infrastructure (GII), providing universal access to data, voice and video connections, is going to revolutionize the way people live in the next millennium. Telecommunication satellite systems can play a major part in building up GII by providing interactive broadband services at prices consumers can afford. The best way to overcome ground network capacity and limited range is to use satellite multimedia systems, giving users all over the world immediate access to information resources.

10. Satellite multimedia systems providing telecommunications services all over the world have many applications that could be very useful to developing countries in particular. Broadband satellite services, at affordable costs, are ideally positioned to assist those countries in making a direct transition to modern infrastructures. Examples include telecommunications (distance education, training and integration of large numbers of people into economic activity), tele-medicine and agriculture (broadcasting weather reports). Wherever ground infrastructures (radio links, communication lines) are either non-existent or very inefficient, satellites can play an important role.

11. ESA is preparing a programme in the area of broadband satellite multimedia that will lay special emphasis on applications of satellite communications in the fields of health care, education and disaster and emergency management.

II. Basic space science and its benefits

12. A cleaner and quieter environment, the absence of atmosphere, the advantages of exploration *in situ*, rather than from a particular point and gravity on the Earth's surface are so many factors that make space an unequalled arena for the understanding of the universe. At the same time space science requires technology of the highest quality and, in stimulating technological progress, is of immediate value to meeting our daily needs. ESA has a space science programme dedicated to improving man's understanding of the universe, in which it

cooperates with other space agencies around the world, the National Aeronautics and Space Administration of the United States, in particular.

13. One of the issues of concern is how developing countries can benefit from space science. The United Nations and ESA are already addressing the issue through the joint organization of workshops dedicated to basic space science.

III. International cooperation

14. During the last 10 years, the conditions for conducting international cooperation have changed dramatically. Less international tension and increased commercialization have opened up fertile ground for international cooperation, creating new opportunities for countries with no space capabilities of their own.

15. ESA welcomed the adoption by the General Assembly, in its resolution 51/122 of 13 December 1996, of the Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries, which clearly sets the conditions for international cooperation. The Agency will continue to support, in all relevant forums and in consultation with its member States, the quest for cooperation on global issues that concern all humankind, to which a strong contribution can be made by space activities.

Distr.: General
10 June 1999

Original: English and French

THIRD UNITED NATIONS CONFERENCE ON THE EXPLORATION AND PEACEFUL USES OF OUTER SPACE

Vienna
19-30 July 1999

Abstract of the paper of the United Nations Institute for Training and Research

New environmental governance on line thanks to new information and communication technology

I. Rationale

1. Many national, regional and international environmental programmes have produced an important amount of data and information. This treasure trove of information is difficult of access for reasons of a technical (incompatibility of format, distance), administrative (barriers between ministries, departments, universities, non-governmental organizations, etc.) and cultural (one believes that information is power) nature. New information and communication technologies now allow for new governance on line. The United Nations Institute for Training and Research (UNITAR), with its main partner, the Sahel and Sahara Observatory, have conducted promising projects in Africa.

2. The Institute's Environmental Information and Monitoring Systems on the Internet (EIMSI), set up in response to chapter 40, "Information for decision-making", of Agenda 21 and in particular to the obligations set by international legal instruments on the environment (e.g. the Convention on Biological Diversity, the United Nations Framework Convention on Climate Change, the United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, the Convention on Wetlands of International Importance Especially as Wildfowl Habitat and the Convention on International Trade in Endangered Species of Wild Fauna and Flora) as regards the collection, exchange and distribution of environmental data and information, are virtual clearing-house mechanisms for environmental action programmes at the national and regional levels.

II. The audience

3. EIMSI and the Desertification Information Systems (DIS) enable all concerned parties (public services, civil society and partners in cooperation) at the national, subregional and regional levels to have access to a wide range of environmental information and data. They thus enhance the value and utilization of existing information resources and their use in decision-making processes. They facilitate synergy of effort between the different partners.

V.99-84870 (E)

III. The concept

4. EIMSI and DIS consist of series of items accessible in dedicated "kiosks" through the use of Internet services:

(a) Institutional kiosks, listing stakeholders involved in environmental programmes and describing their activities;

(b) Thematic kiosks, exploring by topic (biodiversity, climate change, desertification, forests and coastal areas) the know-how and skills that ensure synergy between national, subregional and regional coordination efforts, as requested by the international legal instruments on the environment;

(c) Kiosks on products in the form of:

(i) A virtual library, grouping together existing bibliographic references on a given topic and providing access to documents;

(ii) A virtual map library, making available maps and images in a standard format;

(iii) Country-at-a-glance files, describing, through a geographic information system on line (GISWEB) and in a synthetic manner, the state of the environment.

IV. The methodology

5. Successful implementation of EIMSI required two important phases:

(a) An institutional phase, guided by a participatory approach of all those involved in order to achieve an institutional profile of the environment and to issue an information charter describing:

(i) The functionality and results expected from the virtual clearing-house mechanism;

(ii) Administrative rules and regulations for the circulation of and access to environmental information;

(iii) Ethics and principles guaranteeing the right of access to environmental information;

(b) A capacity-building phase in support of implementation at the local level, through provision of training and equipment to persons and institutions in charge of the creation and updating of EIMSI.

V. Achievements

6. At the national level, in the context of implementation of their individual national action plan and under the auspices of the Sahel and Sahara Observatory, Mali, Morocco, Senegal and Tunisia have already created a first version of their EIMSI. In order to set up its environmental action programme, Benin is also developing an EIMSI, while Burkina Faso, Guinea and Uganda are preparing their action programmes.

7. At the subregional level, the Permanent Inter-State Committee on Drought Control in the Sahel and the Economic Community of West African States are planning the development of a regional EIMSI to assist in the implementation of their subregional action plan. East Africa has expressed similar interest.

8. At the regional level, the United Nations Environment Programme Global Resource Information Database Geneva, the Institut français de recherche scientifique pour le

développement et la coopération and the Consultancy Services for Earth Observation have contributed to the preparation of a first version of an EIMSI for Africa.

VI. Partners

9. For the time being, the EIMSI programme being implemented by UNITAR in the framework of a tripartite arrangement with the secretariat of the United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, and the Sahel and Sahara Obervatory is being supported by France, Germany, the United Nations Development Programme, the United Nations Environment Programme, the World Bank, the Agence de la Francophonie and the Club du Sahel.

VII. Conclusions

10. UNITAR and the Sahel and Sahara Observatory are ready to give assistance to countries that are interested in setting up similar projects.

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Distr.: General
9 June 1999

Original: English

THIRD UNITED NATIONS CONFERENCE ON THE EXPLORATION AND PEACEFUL USES OF OUTER SPACE

Vienna
19-30 July 1999

Abstract of the paper of the Economic and Social Commission for Asia and the Pacific

1. In the region of Asia and the Pacific, the development of space technology has evolved to become more application-driven and user-oriented. In the past two decades, the progress in space technology and its various applications has been very significant and impressive, making Asia and the Pacific one of the more dynamic areas in the field of space technology and development. It is this dynamism that motivated the launching of the Regional Space Applications Programme for Sustainable Development during the first Ministerial Conference on Space Applications for Development in Asia and the Pacific, held in September 1994. Under the auspices of the Regional Space Applications Programme, numerous activities were initiated that contributed to raising the status of the region in using space technology in support of sustainable development. With the successful implementation of the Regional Space Applications Programme, the Economic and Social Commission for Asia and the Pacific (ESCAP) now recognizes the need to prepare the region further for expanded and effective practical uses of space technologies for the next millennium and to strengthen promotional efforts at both the regional and national levels. In view of this, ESCAP, in cooperation with the Government of India, is organizing the second Ministerial Conference on Space Applications for Sustainable Development in Asia and the Pacific, to be held in New Delhi from 15 to 20 November 1999, in support of the region's continued efforts to enhance regional cooperation in space technology and development. Not only will the second Ministerial Conference build upon the successes attained through the Regional Space Applications Programme, but it will also attempt to derive benefits from lessons offered by experiences and pitfalls of the past. Since it is being held a few months after the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III), the second Ministerial Conference will also be able to translate the recommendations at the global level into the regional arena.

2. The paper will review the projects and activities under the Regional Space Applications Programme that contributed to the current dynamism in space technology development and applications in the region. It will also present the preparations for the second Ministerial Conference, which is expected to sustain the momentum achieved through the implementation of the Regional Space Applications Programme.

V.99-84858 (E)

Distr.: General
11 June 1999

Original: English

THIRD UNITED NATIONS CONFERENCE ON THE EXPLORATION AND PEACEFUL USES OF OUTER SPACE

Vienna
19-30 July 1999

Abstract of the paper of the International Telecommunications Satellite Organization

The International Telecommunications Satellite Organization and the United Nations: partnership opportunities for the next millennium

1. Since the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space in 1982, the telecommunication environment has evolved dramatically in terms of technology, policies, regulatory frameworks and market structure. During that time, telecommunication services have changed from being viewed as a utility to being considered an important resource, affecting the development of countries, industries and societies. Changes in telecommunication technology and services have had a profound impact on how people live and work, and even on how Governments are run.

2. The International Telecommunications Satellite Organization (INTELSAT) has spearheaded the use of advanced technologies in its satellite fleet aimed at improving the use of the frequency spectrum and the geostationary orbit. This has resulted in gains in efficiency, diversified satellite service offerings, increased satellite capacity and reduced satellite utilization charges. INTELSAT has adhered consistently to self-imposed policies and procedures as well as to international recommendations to protect the space environment from the generation and accumulation of space debris.

3. Advances in technology, as well as deregulation, the globalization of economies and services and the inclusion of telecommunication services in international trade have led to a transformation of the satellite industry market structure. Telecommunication monopolies are being eliminated, international organizations are heading towards privatization and the rules of competition are being introduced on a global scale.

4. In parallel with those changes, the INTELSAT system has evolved significantly in terms of increased capacity, advanced service offerings and lower space segment costs. INTELSAT, which actively fulfils its mission of providing advanced telecommunication services to all parts of the world on a non-discriminatory basis, is continuing to address key issues relative to the Organization's future structure, while maintaining its commitment to provide connectivity for lifeline users.

5. INTELSAT has launched numerous initiatives to help achieve the United Nations goal of lessening the information gap around the world. Those activities have included providing technical assistance, network planning, technical training, funding for digital equipment,

collaborating with the activities of the Telecommunications Development Bureau of the International Telecommunication Union and free use of satellite capacity for humanitarian causes. INTELSAT has also been instrumental in bringing the Internet to the world, and making the World Wide Web truly worldwide. In fact, over 125 countries in the world use INTELSAT for their connection to the Internet backbone. Furthermore, the INTELSAT system is being used on a global basis for disaster relief, environmental monitoring of nuclear testing and other peacekeeping and humanitarian applications.

6. The shift from an industrial to an information-based economy will create a significant challenge for all countries during the next millennium. The INTELSAT global satellite system, with its 35-year record of quality and reliability, is well-positioned to fulfil the communication service requirements of the twenty-first century networked world. The Organization's commitment to provide expanded telecommunications to all areas of the world to contribute to world peace and understanding makes it a strategic partner of the United Nations in meeting the challenges of the information age.

Distr.: General
14 June 1999

Original: English

THIRD UNITED NATIONS CONFERENCE ON THE EXPLORATION AND PEACEFUL USES OF OUTER SPACE

Vienna
19-30 July 1999

Abstract of the paper of the World Meteorological Organization

Status report of the scientific knowledge of the Earth and its environment

The World Meteorological Organization (WMO) is an intergovernmental organization with a membership of 185 States and Territories. It originated from the International Meteorological Organization, which was founded in 1873. Set up in 1950, WMO became the specialized agency of the United Nations for meteorology (weather and climate), operational hydrology and related sciences. The WMO paper describes the objectives, programmes and systems of the Organization and highlights the many and varied applications of satellite data and products by its members.

V.99-84990 (E)

Distr.: General
28 June 1999

Original: English

THIRD UNITED NATIONS CONFERENCE ON THE EXPLORATION AND PEACEFUL USES OF OUTER SPACE

Vienna
19-30 July 1999

Abstract of the paper of the Food and Agriculture Organization of the United Nations

1. The Food and Agriculture Organization of the United Nations (FAO) was founded in October 1945 with a mandate to raise levels of nutrition and standards of living, to improve agricultural productivity and to better the conditions of rural populations. Today, FAO is the largest autonomous specialized agency within the United Nations system with 174 member countries and the European Union as member organization.

2. A specific priority of the Organization is promoting and supporting sustainable agriculture and rural development, a long-term strategy for the conservation and management of natural resources. It aims to meet the needs of both present and future generations through programmes that do not degrade the environment and are technically appropriate, economically viable and socially acceptable.

3. In November 1996, FAO convened the first World Food Summit, which resulted in a comprehensive World Food Summit Plan of Action, aiming at reducing the present number of malnourished people in the world by half by the year 2015. One of the key instruments of the Plan of Action is the FAO Special Programme for Food Security, which draws its defined overall objective of improving food security in low-income food-deficit countries from Agenda 21, which was adopted unanimously by the countries of the world at the United Nations Conference on Environment and Development in June 1992.

4. Currently, FAO is developing a Strategic Framework 2000-2015 to guide the work of the Organization in the medium and longer term. Systematic collection, analysis, interpretation and dissemination of information relating to nutrition, food and agriculture, including environment and natural resource management, is a key priority of the strategic framework.

5. FAO started to use space technology applications in the early 1970s by introducing remote sensing technologies in its projects and programmes when the Organization formally created a Remote Sensing Unit. In 1980, following a recommendation from the Committee on the Peaceful Uses of Outer Space, endorsed by the General Assembly, the FAO Remote Sensing Centre was formally established with responsibility for remote sensing applied to renewable natural resources within the United Nations system.

6. Within the mandate of its regular and field programmes, FAO has developed a wide variety of activities in which remote sensing, Geographic Information System (GIS) and communication technologies at present play an integral and key role.

7. In the field of environmental monitoring, FAO has since 1988 operated the Africa Real-Time Environmental Monitoring Information System (ARTEMIS) in the context of its Global Information and Early Warning System (GIEWS) on Food and Agriculture and the Emergency

Centre for Locust Operations (ECLO), based on the use of data from Meteosat, the Advanced Very High Resolution Radiometer of the National Oceanic and Atmospheric Administration (NOAA-AVHRR) of the United States of America, the Système pour l'observation de la Terre (SPOT)-4 VEGETATION and geostationary meteorological satellites. ARTEMIS data are being used operationally at the regional and national levels in the countries of the southern Africa region through cooperation with the Southern African Development Community.

8. FAO also operates the AFRICOVER project, which aims to establish a digital land-cover database for selected subregions of Africa and which has been operational since 1995 in the east African region. Through the project, a land-cover classification system was developed by FAO and disseminated for wider use by member States.

9. Together with the World Bank, FAO is implementing a regional project in central Africa, the Regional Environmental Information Management Project for Central Africa. This project aims at improving and strengthening of planning and management of natural resources in the countries of the Congo Basin by providing the various stakeholders with appropriate environmental information.

10. In cooperation with a number of partners and with financial support from the European Union, FAO designed an Integrated Coastal Analysis and Monitoring System. That System will support the management of coastal area ecosystems through the monitoring of water quality and coastal resource distribution and usage parameters from multiple Earth observation data such as satellite data from SeaWIFS and future ENVISAT sensors and *in situ* measurements.

11. Following the successful completion of Phases I and II of the FAO/United States Agency for International Development project on the monitoring, forecasting and simulation of the Nile River, FAO is currently implementing Phase III of the project during 1997-1999 to assist the Government of Egypt in consolidating the results achieved in the earlier phases. Phase III of this project is to consolidate further the Nile River monitoring and forecasting system; the related control/decision support system has been approved and implementation commenced in 1998.

12. The 1990 Forest Resources Assessment project of the Forestry Department of FAO, a global survey of forest resources, demonstrated that, with the help of remote sensing, information on changes in forest and land use could be obtained on a global basis in a cost-effective, timely and statistically sound manner. FAO is currently preparing for a global forest resource assessment for the year 2000 that will make intensive use of remote sensing and GIS, ranging from coarse-resolution global coverage for land-cover mapping to high and very high resolution multi-date satellite imagery for surveys of global and regional forest/land-cover changes.

13. With the Government of the Netherlands, FAO is developing the Forest Assessment and Monitoring Environment concept. This programme aims at defining, developing and implementing a dedicated operational end-to-end satellite remote sensing capacity to provide real-time access to appropriate spatial data for supporting sustainable forest management at the subnational level.

14. FAO has a long history of involvement with climate-related activities through cooperation with the Word Meteorological Organization (WMO). Currently, the main activities on agroclimatic databases and agrometeorology, using data both from satellites and *in situ* observations, include: (a) management of the climatic database for about 25,000 stations worldwide (FAOCLIM); (b) production of digital maps (at various levels) based on the climatic database; (c) compilation of a database of African subnational crop statistics (AGDAT); (d) real-time monitoring of food crop conditions and yield forecasting, in particular for African countries; and (e) fulfilment of specific requests that require the analysis of

climatic data to be integrated with socio-economic variables. Together with ARTEMIS, AGROMET is providing essential value-added analysis and related information products for the Organization's operational GIEWS.

15. Through its Environment and Natural Resources Service in the Sustainable Development Department, FAO is actively promoting operational use of remote sensing and related information technology in both its normative and field programmes for environmental and natural resource management and conservation in the context of sustainable agriculture and rural development of its member countries. The Service is currently backstopping some 65 projects that have remote sensing, GIS and information management components in more than 50 member States.

16. Within its strategic framework, FAO has given high priority to developing partnerships with interested international organizations, United Nations agencies and governmental institutions for the development of information bases and decision support tools to address needs in the implementation of Agenda 21 and international environmental agreements and conventions, such as the conventions on biological diversity, desertification and climate change.

17. FAO is, jointly with the International Council for Science, the United Nations Environment Programme, the United Nations Educational, Scientific and Cultural Organization and WMO, a founding member of the Global Terrestrial Observing System and also hosts the secretariat of the System. The central mission of the System is to provide policy makers, resource managers and researchers with decision support tools and access to the data needed to detect, quantify, locate, understand and warn of changes (especially reductions) in the capacity of terrestrial ecosystems to support sustainable development.

18. As a major user of the Earth observation data, FAO has been participating in the work of the Committee on Earth Observation Satellites as an associate member. FAO is also working closely with other partners within the United Nations system and other international organizations on the development of an Integrated Global Observing Strategy.

19. FAO is also developing active partnerships with the European Union, the Joint Research Centre of the European Union, the National Aeronautics and Space Administration and NOAA of the United States of America, the European Organization for the Exploitation of Meteorological Satellites and the European Space Agency on the development and operational use of new satellite data sources with a view to improving its information services and to broadening the group of users, both at FAO headquarters and in the field. FAO is also developing cooperation with educational institutions with the objective of responding to the training needs of developing countries in relation to natural resource management and environmental monitoring, and distance education. FAO is also actively involved in helping member countries strengthen their capacity to develop distance learning programmes using various means, including satellite communications systems. FAO provides technical advice to member countries in establishing distance education centres and developing course programmes.

20. Increasingly involved in information and communication technologies, FAO is moving progressively into the digital age by developing the World Agricultural Information Centre (WAICENT) and various corporate digital spatial databases (http://www.fao.org/waicent). FAO information materials and publications relating to space applications, including remote sensing, GIS, agrometeorology, environment and energy, as well as education and communications, can be found on the Web site of the Sustainable Development Department, "Sustainable Development Dimensions" (http://www.fao.org/sd (environmental information/resources)).